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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

ADDISU, SARA

ART UNIT PAPER NUMBER

3722

DATE MAILED: 08/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/826,311 | Applicant(s) STABEL ET AL. | |
| | Examiner Sara Addisu | Art Unit 3722 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2004 and 26 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the amendment filed 5/26/06. Currently, claims 1-22 are pending in this application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1,, page 2, lines 1-2 recites “.. the height of the corner step portions is substantially greater than the height of the lateral step portions”. Examiner respectfully points out that Applicant has not defined what determines the limitation “substantially greater”. Applicant has not provided any range to define this difference in height. For the purpose of this Office Action, broadly reading the claim, Examiner points out that given the fact that inserts are small in size, even if the angle difference is small, there is a height difference which may be considered “substantial” in a unit of measure such as micrometer.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8, 11-16, 18, 19, 21 and 22, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Katbi et al. (U.S. Patent No. 5,230,591).

Katbi et al. teaches a cutting insert having a multi-cornered base body (square when viewed in top view, fig 2) including top and bottom surfaces (12 & 14), side flanks (26, 28, 30 & 32) interconnected by corner surfaces, cutting surface (36) on top and/or bottom surface, peripheral cutting edge (38) formed at the intersection of side flanks and top and bottom surfaces (12 & 14) (see figure 1 and Col. 2, lines 40-45). Katbi et al. also teaches the cutting surface having a central bore (34), a plateau (50 with raised support pads 52) located on the top and bottom surfaces surrounded by a peripheral positive rake surface (46) that is situated between the plateau surface and the cutting edge (38) (see diagram below). Furthermore, Katbi et al. teaches an upwardly extending variable peripheral step (48) interconnecting the plateau (50) and the rake surface (46) (with the corner step portions extending uninterruptedly along the respective corner rake surface portions) (see figure 2, which also shows that step (48) is

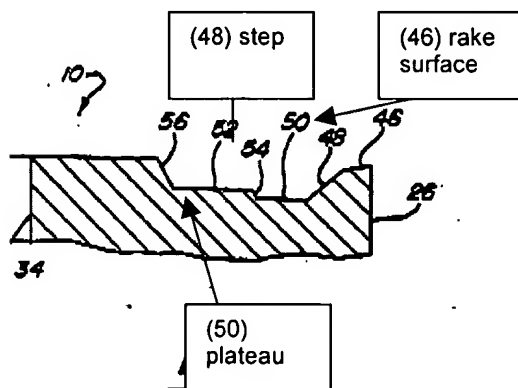
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linear when viewed perpendicular to the cutting surface). Additionally, Katbi et al. teaches side flanks forming obtuse corners (see figure 2). Katbi et al. also teaches in figure 3, lateral cutting edge (38) having a sagging middle portion therefore the step is of varying height having a maximum height is disposed at the corner step portions and a minimum height midway between the adjacent corners (refer to the explanation and figure below regarding the varying height of the step: see argument under Response to Arguments). Regarding claim 19, Katbi et al. teaches variable width land surface (rake) which is changes width at (44) leading to a wavy step portion around the corners (see figure 2 and Col. 2, lines 49-54). Furthermore, Examiner points out that Katbi et al. teaches the cutting edge (38: which is arched) has a descending rake (46) located rearward from the cutting edge and the descending rake face is followed by a descending step (48) ('591, figure 4 and Col. 2, lines 45-58 and 66-68). If the height of the step was constant then the step would no longer be descending towards the center of the insert but rather ascending since the rake surface just forward of it has a variable descending angle. See figure below for further explanation (the angles are exaggerated). Katbi et al. teaches the rake face (46) having descending angle 14 degrees and narrower width (wa) at the corner and 12 degrees and a wider width (wb) towards the flank ('591, Col. 2, lines 58-60 and 51-53). As shown below, the left figure indicates corner portion where the cutting edge is at it's highest height (because it's arched at the center), however the rake face has a wider descending angle and a narrower width (wa) which leads to the following portion (i.e. descending step, 48) to start descending from a higher location to plateau 50. On the other hand, the right hand

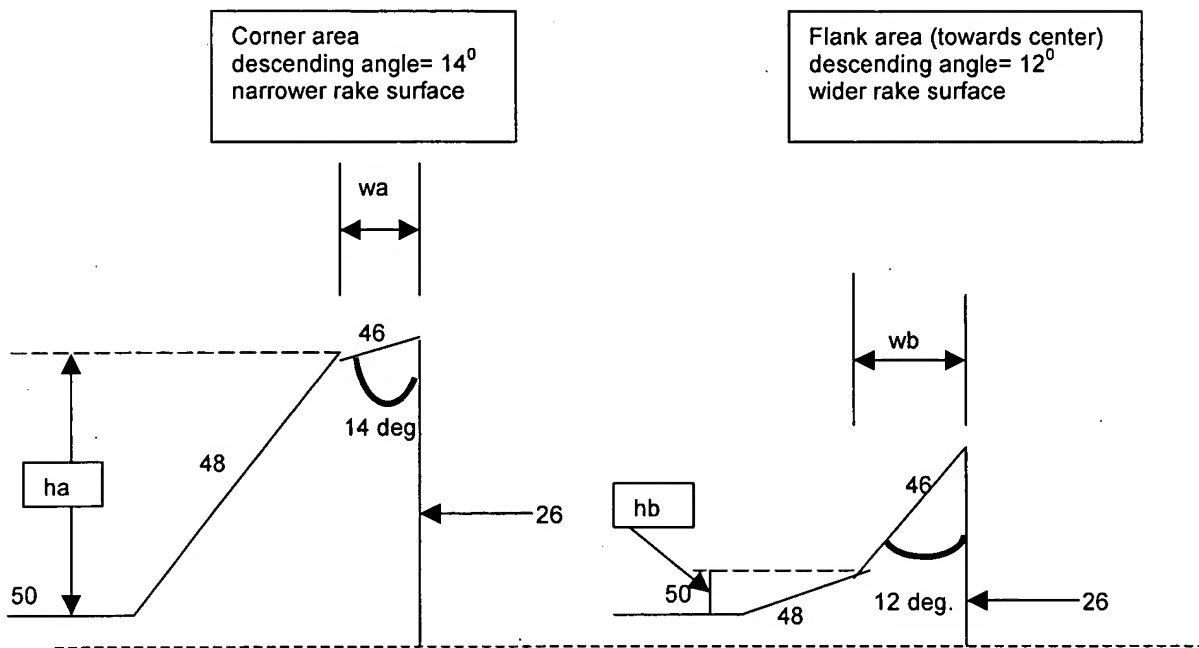
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figure represents the flank area such as the center where the cutting edge is at its lowest height (because it's arched at the center), however the rake face has a smaller descending angle and a wider width (wb) which leads to the following portion (i.e. descending step, 48) to start descending from a lower location to plateau 50, thus there is a height difference (ha is higher than hb) (i.e. the step has a varying height, wherein a maximum height is disposed at the corner step portions, as recited in claim 1).

Furthermore, Katbi et al. teaches '591, Col. 2, lines 60-65) that "Those skilled in the art recognize that any angles can be used as the first variable descending land angle so long as the first variable descending land angles at the corners of the insert are greater than the first variable descending land angle of the surface along the flanks of the insert", therefore the selected angles would determine how substantially height difference there should be. Examiner points out that given the fact that inserts are small in size, even if the angle difference is small, there is a height difference which may be considered "substantial" in a unit of measure such as micrometer.



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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 9 and 10, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Katbi et al. (U.S. Patent No. 5,230,591), in view of Okada et al. (U.S. Patent No. 6,234,726).

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Katbi et al. teaches a cutting insert having a multi-cornered base body as set forth in the above rejection.

However, Katbi et al. fails to teach the insert having a wedge angle less than 90 degrees to define a lateral clearance surface.

Okada et al. teaches an indexable insert having flank faces (23) inclined inwardly as they approach a lower surface of the tip body (i.e. have a wedge angle less than 90 degrees), defining a clearance angle/surface with respect to the edges (24) (see figure 2 and Col. 10, lines 34-35).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incline inwardly the peripheral surfaces of Katbi et al.'s insert towards the lower surface as taught by Okada et al. for the purpose of obtaining clearance in relation to work piece.

4. Claim 17, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Katbi et al. (U.S. Patent No. 5,230,591), in view of Hessman et al. (USP 5,032,049).

Katbi et al. teaches a cutting insert as set forth in the above rejection.

However, Katbi et al. fails to teach the minimum height of the step being situated closer to one of the corners.

Hessman et al. teaches a cutting insert having side surfaces (13A-13D). Hessman et al. also teaches in figure 2a, side surfaces 13B and 13D having cutting edges that form two arched portions such that step (16A) located at the lowest point of the arch is closer to one of the corners of the cutting insert ('049, Figures 2a).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Katbi et al.'s invention such that it's cutting edge has two arched portions, as taught by Hessman et al. for the purpose of achieving carefully defined line-shaped support surfaces abutting the site of the milling body ('049, Col. 3, lines 29-32).

5. Claim 20, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Katbi et al. (U.S. Patent No. 5,230,591).

Katbi et al. teaches a cutting insert as set forth in the above rejection. Katbi et al. fails to teach a bore passing through the base body from one lateral face to another lateral face. However, it is well known in the art that when there is a milling tool having a tool body on which a plurality of cutting inserts are supported, the cutting inserts could be mounted preferably as lateral insert or tangential inserts, that is, their securing bore is oriented either approximately in the axial direction (lateral insert) or in the radial direction (tangential insert) thus have a bore passing through the base body from one lateral face to another lateral face.

Response to Arguments

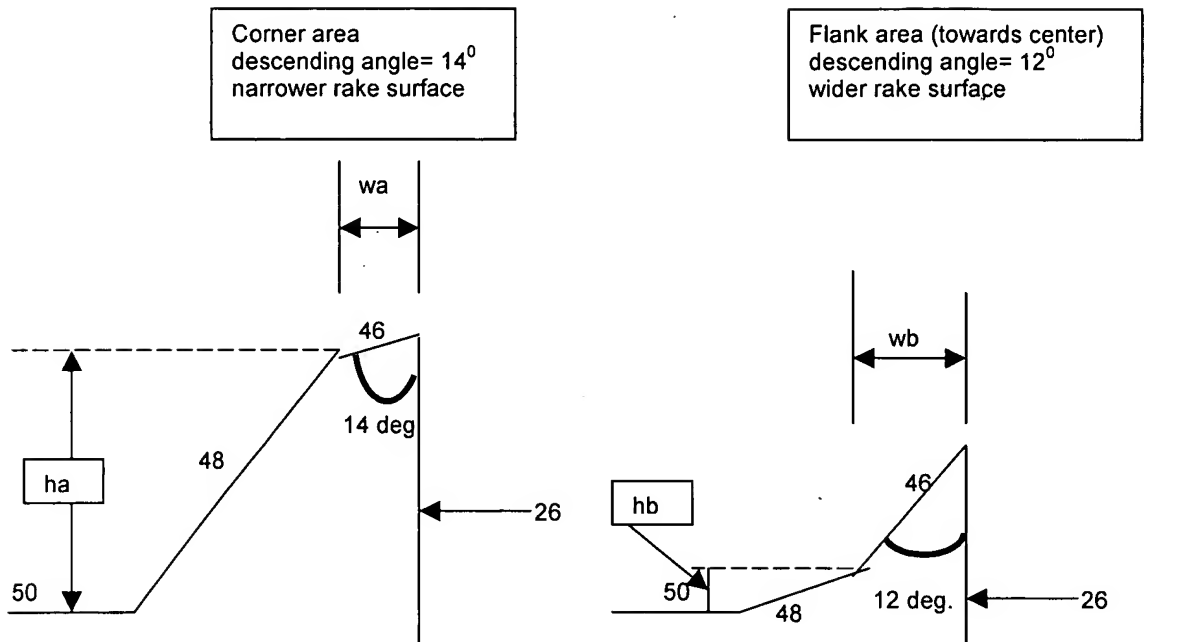
6. Applicant's arguments filed 5/26/06 have been fully considered but they are not persuasive.

In response to Applicant's argument (page 9, lines 7-14) that "The variable descending land angle 46 is 14 degrees at each corner of the insert and merges to a 12 degree along the flank of the insert.....Applicant respectfully submit that any such variation of the height of step 48 is negligible, and in any event the height of step 48 at the corners is certainly not substantially greater in height of step 48 of the flanks". Examiner respectfully points out that Applicant has not defined what determines the limitation "substantially greater". Applicant has not provided any range to define this difference in height. Broadly reading the claim, Examiner points out that given the fact that inserts are small in size, even if the angle difference is small, there is a height difference which may be considered "substantial" in a unit of measure such as micrometer. Furthermore, Katbi et al. teaches (Col. 2, lines 60-65) that "Those skilled in the art recognize that any angles can be used as the first variable descending land angle so long as the first variable descending land angles at the corners of the insert are greater than the first variable descending land angle of the surface along the flanks of the insert".

In response to Applicant's argument (page 9, lines 14-15) that "Moreover, Katbi fails to even recognize the problem that Applicant's invention solves (i.e. smear on)", Examiner respectfully points out that this limitation has not been claimed.

In response to Applicant's argument (page 9, line 20 through page 10, line 2) that "...Katbi does not disclose a step. Katbi discloses a descending land angle 46 and a second descending land angle 48. As illustrated in Fig 4 of Katbi, descending land angle 46 and descending land angle 48 are ramps, rather than steps", Examiner submits that MSN Encarta defines "step" as "raised surface: a raised surface for the foot, especially in a series going up or down", therefore, the descending 46 & 48 qualify as a step.

In response to Applicant's argument (page 10, second paragraph), Examiner has mislabeled the angles (14 and 12 degrees) as being rake angles when it should have been descending angles (also supported in Katbi et al., '591, col. 2, lines 58-50).



In response to Applicant's argument (page 10, lines 14-18), that "Also the applicant disagrees with the Office Action's position that surface 50 is a completely plain and even surface. Referring to Fig 1 of Katbi, land 48 is a strip of constant width..... Obviously, surface 50 is curved the same way as are the cutting edges 30, 32 and so forth", Examiner respectfully asks Applicant where this is claimed in the instant application as well as where the Office Actions takes this position. Nonetheless, figure 4 indicates that 50 is plain and even. Even if 50 is curves the same way as the cutting edge, as stated by the Applicant, it would be curved from the plan view and not from a side view).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara Addisu at (571) 272-6082. The examiner can normally be reached on 8:30 am - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sara Addisu
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SA
8/12/06

Monica S. Carter
MONICA CARTER
SUPERVISORY PATENT EXAMINER